

APS/Users Monthly Operations Meeting

Brian Stephenson

August 28, 2013

Agenda

- APS Update – Brian Stephenson
- APS Upgrade Update – George Srajer
- Preliminary Expected Performance Characteristics of APS Multibend Achromat Lattice – Michael Borland



“Natural” Radioactivity & APS Samples

- The Department of Energy (DOE) requires radiation exposure to employees, visitors, the general public and facility users to be maintained as low as reasonably achievable (ALARA). The DOE includes consideration of background radiation in this requirement. Background radiation has several sources including naturally occurring radioactive materials and global fallout as it exists in the environment (such as from testing of nuclear explosive devices.)
- The DOE explicitly requires controlling potential exposure beyond that solely due to background radiation. One means by which APS implements these controls is through the requirements defined under APS [Experiment Hazard Class 8.1](#) which includes radioactive material samples. These controls include shipping and handling requirements for radioactive material samples. Also considered is potential radioactive contamination of APS facilities and equipment.



Proposed "Natural" Radioactivity Exemption

- Natural samples that have not been processed (beyond e.g. sterilization) are part of background radiation and as such are not considered to be radioactive for application of radioactive sources requirements.
- However, samples containing naturally occurring radioactive material must be treated as radioactive material samples at APS if any action has been taken to separate or concentrate the radioactive isotopes within the sample material from its naturally occurring context. Examples include:
 - Soil samples from the Chernobyl or Fukushima exclusion areas or similar areas affected by known or suspected airborne effluent discharge points
 - Sediments taken from downstream of known or suspected radioactive effluent discharge points
 - Rocks, ores, mineral deposits, mining tailings, or similar items with naturally occurring radioactive isotopes known to contain higher concentrations than typically encountered
 - Any manmade chemical in which radioactive isotopes are concentrated (such as biological material staining chemicals containing uranium) or samples treated by such chemicals
- **Are any loopholes created by this language that could result in exemption of material that could contaminate a beamline station?**



“Natural” Radioactivity & APS Samples (*cont’d*)

- In addition while radioactive material samples containing minute quantities of radioactive isotopes may not require special packaging under Department of Transportation regulations in transit to Argonne, these samples do require radioactive postings and handling once they arrive at the Laboratory. These materials must be shipped via the Argonne Materials Controls & Accountability (MC&A) Group.
- Any questions regarding the proposed use of naturally occurring radioactive materials must be brought to the attention of your Beamline and/or the APS ([Bruce Glagola](#)) as early as possible to assure that the materials are handled according to the required regulations. See APS [Experiment Hazard Class 8.1](#) for details on shipping and other requirements for radioactive materials.
- **Is this direction clear? What else may need to be said?**



Dynamic Compression Sector (35) Hutches

- Completion FY14



LOM 438F Construction (DCS)

- Completion October



8.19.2013



Intermediate Energy X-ray Beamline 29-ID

Completion FY14



8.19.2013



Resonant Inelastic X-ray Scattering Beamline 27-ID

- Hutch construction has started



8.19.2013



LOM 437 Offices Build-out



Completion October 1



New Parking Lot in 437 / CNM Area

- Ready for use October 1



Advanced Protein Crystallization Facility Construction

- Completion FY14
- Will house programs from Argonne Biosciences division



User Office Changes

On June 1, 2013, **Susan White-DePace** became the APS User Program Manager and **Susan Strasser** became the Senior Advisor, User Programs (50% time). **Connie Vanni** is the Assistant User Program Manager. Major responsibilities of each are below.

Susan White-DePace	Connie Vanni	Susan Strasser
Overall User Program mgt.	Overall User Office mgt.	Scientific Advisory Comm.
Foreign Visits/Assignments	Beam Time Access Program	Beamline/CAT Reviews
User Agreements	Database Management	Policy Issues
PUC	APSUO	Argonne Scientific User Facilities Group
NUFO Executive Administrator	Annual Users Meeting	NUFO Steering Committee



Diffraction Pattern Obtained by the Prototype Superconducting Undulator (SCU0) at 100 keV

APS: 6-ID beamline



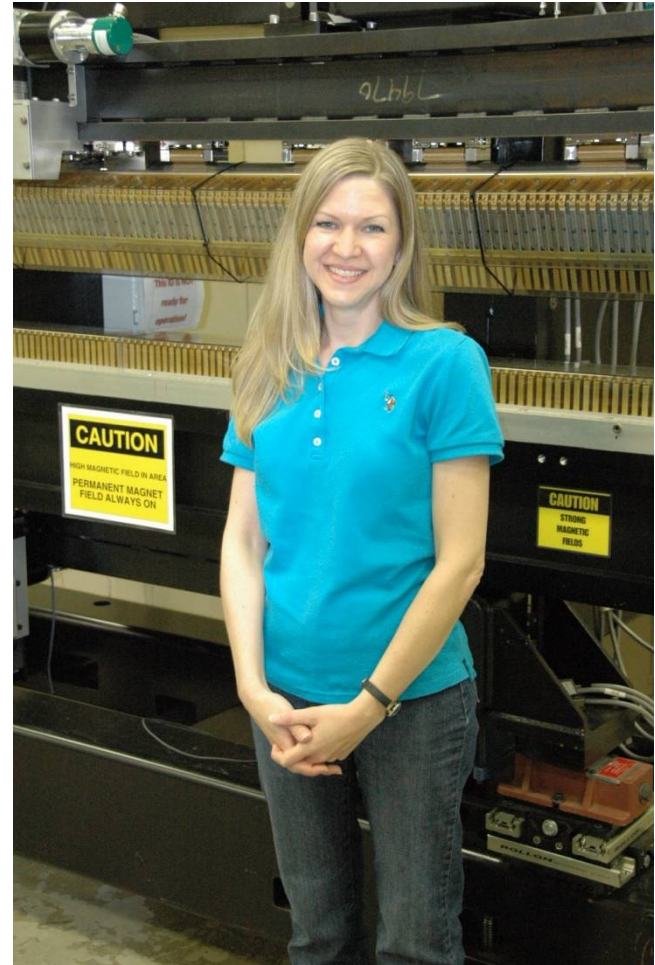
Diffraction pattern from a Gd-Cd quasicrystal showing ten-fold rotational symmetry. High-energy diffraction provides an undistorted view of reciprocal space enabling a quantitative analysis of both the Bragg peaks and diffuse scattering

A. I. Goldman et al., [Nat. Mater.](https://doi.org/10.1038/nmat3672), published online 09 June 2013. DOI:10.1038/nmat3672

Pacesetter: Susan Bettenhausen (ASD)

In recognition of extraordinary effort in the assembly of the first APS superconducting test undulator, SCU0

- Susan achieved all internal and external wiring of the SCU0 on time and with the highest quality
- In addition, Susan carried out successful installation of the multi-layer insulation in the SCU0 cryostat



Pacesetter: Raul Mascote, Guy Harris, Glenn Moonier, and Aaron Lopez (AES)

In recognition of extraordinary effort in the installation of the first APS superconducting test undulator, SCU0

- Raul, Guy, Glenn, and Aaron installed water and vacuum components of the SCU0 undulator without a single installation error and per the shutdown work schedule
- This involved tunnel layout; precise installation of support stands, the SCU0 vacuum chamber, and related components; assistance with cryomodule installation, bakeout, and leak checking; and water, control cable, and helium transfer-line installations



Pacesetter: Scott Wesling and William Jansma(AES)

In recognition of extraordinary effort in the alignment of the first APS superconducting test undulator, SCU0.

- Bill and Scott provided innovative, high-precision alignment throughout the assembly, cold testing, and storage ring installation of SCU0, a complex system assembled to very tight tolerances



Pacesetter: Connie Markiewicz (PSC)

Lead organizer of a very important DOE Budget Review. The review required a tremendous amount of work and expertise to dissect the APS budget along with organizational and laboratory burdens, into an easy to understand format for DOE reviewers.

